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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/879,722	06/12/2001	Yasufumi Ichikawa	33677	4905

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EXAMINER

PEREZ, ANGELICA

ART UNIT	PAPER NUMBER
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2618

DATE MAILED: 04/07/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/879,722	ICHIKAWA, YASUFUMI	
	Examiner	Art Unit	
	Angelica M. Perez	2684	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 12/27/2006.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-24 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 25-38 is/are allowed.
- 6) ☒ Claim(s) 1-24 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Response to Arguments

1. Applicant's arguments, see amendment filed on 12/27/2005, with respect to claim 7, page 3, have been fully considered and are persuasive. The rejection to claim 7 has been withdrawn.

Allowable Subject Matter

2. Claims 25-38 are allowed.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 1-2 and 13-14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Malkemes (Malkemes et al.; WO 97/40584) in view of Igarashi (Igarashi et al.; US Patent No.: 5,926,749 A) and further view of Nguyen (Nguyen et al.; US Patent No.: 6,253,092 B1).

Regarding claims 1 and 13, Malkemes teaches of a transmission power control method, voltage controller and apparatus for controlling the power to transmit to the distant party (page 1, lines 11-15 and 22-24; where the control of power in a long distance communication system is effectuated; column 1, lines 7-10 and figure 1), comprising the steps of: controlling a digital-to-analog converter for generating an analog baseband signal (page 4, lines 7-13; where control is exercised by having the

stages in a fixed fashion; page 11, lines 9-10; e.g., "...I and Q signals are applied to digital-to-analog converters..."), to be input to a modulator (page 11, lines 10-13; where analog signals are inputted into the modulator in order to convert them into IF signals) for frequency-converting a transmission signal to a signal in an IF band (page 11, lines 10-13; e.g., "...modulated to an intermediate frequency"). Malkemes further teaches of controlling a power amplifier for amplifying the transmission signal modulated by the modulator (page 11, lines 17-18; e.g., "the radio frequency signal is then applied to the transmit power amplifier..."). Malkemes further teaches where the amplified signal receives no further modulation (figure 2, items 160 and 190; where the signal is transmitted, after its amplification, without further modulation).

Malkemes does not specifically teach of controlling a plurality of variable power amplifiers for variably amplifying the transmission signal modulated by the modulator.

In related art, concerning an amplifier circuit having common AGC to IF and RF amplifiers for use in a transmitter, Igarashi teaches of controlling a plurality of variable power amplifiers for variably amplifying the transmission signal modulated by the modulator (column 1, lines 24-26; where the apparatus exerts power control utilizing several power amplifiers; figure 1, items 2,3, 4, 6, 8).

It would have been obvious to a one of ordinary skill in the art at the time the invention was made to combine Malkemes's power control method and apparatus with Igarashi's variable power amplifiers in order to provide an amplifier circuit suitable for a transmitter, which is capable of realizing a large dynamic range in a simple configuration, as taught by Igarashi.

Malkemes in view of Igarashi does not specifically teach of an adjustable digital-to-analog converter.

In related art, regarding a closed loop transmitter with DAC sensitivity adjusted to detector nonlinearity, Nguyen teaches of an adjustable digital-to-analog converter (columns 2, 3 and 4, lines 10-12, 51-63 and 43-50, respectively).

It would have been obvious to a one of ordinary skill in the art at the time the invention was made to combine Malkemes in view of Igarashi power control method and apparatus with Nguyen's adjustable digital-to-analog converter in order to "maximize the resolution of the reference input signal over a wide range of power levels", as taught by Nguyen.

Regarding claims 2 and 14, Malkemes in view of Igarashi and further in view of Nguyen teaches all the limitations of claims 1 and 13, respectively. Malkemes teaches where a control ratio of the variable power amplifiers is modified and at least one of series and parallel control in a control range is made in the controlling a plurality of variable power amplifiers (figure 1, items 2, 3, 4, 6, 8; where the examiner has selected an arrangement in series from the choices given by the applicant).

5. Claims 7 and 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Malkemes in view of Fujita (Fujita, Masanori, EP 0,883,250 A2).

Regarding claims 7 and 19, Malkemes teaches of a transmission power control method and apparatus for controlling the power to transmit to a distant party (page 1, lines 11-15 and 22-24; where the control of power in a long distance communication

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system is effectuated; column 1, lines 7-10 and figure 1). Malkemes further teaches of a power amplifier for amplifying a transmission signal (figure 2, item 160).

Malkemes does not specifically teach of a plurality of voltage controllers for controlling the power amplifier via separate bias systems; and a control unit for controlling the plurality of voltage controllers.

In related art, concerning transmission power control, Fujita teaches of a plurality of voltage controllers for controlling the power amplifier via separate bias systems (figure 4, items 7a and 26 represent voltage controllers; where the examiner has considered the “amplifier” as a general term in the invention referring to the “variable amplifier” if this is not the case, then, the applicant has two different inventions. E.g., claims 1-6, 13-18 and 25-28 referring to a variable power amplifier; and claims 7-12, 19-24, 32-38 referring to a single amplifier; amplifier. Figure 4, items 24 and 25 represent the separate bias systems); and a control unit for controlling the plurality of voltage controllers (figure 4, item 9’).

It would have been obvious to a one of ordinary skill in the art at the time the invention was made to combine Malkemes’s power control method with Fujita’s plurality of voltage controllers in order to set the output power level of the output terminal of the circuit to a desired level, as taught by Fujita.

6. Claims 3, 5-6, 8-9, 11-12, 15, 17-18, 20-21 and 23-24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Malkemes in view of Igarashi, further in view of Nguyen as applied to claims 1 and 13 above, and further in view of Fujita.

Regarding claims 3, 9, 15 and 21, Malkemes in view of Igarashi and further in view of Nguyen teaches all the limitations of claims 2, 8, 14 and 20, respectively. Malkemes teaches of circuit conditions between a portable telephone and a base station being applied to the transmit output correction circuit (column 1, lines 58-67).

Malkemes in view of Igarashi and further in view of Nguyen does not specifically teach of a detection step of detecting a state of at least one of a local station and a distant station; and a modification step of modifying the control ratio according to the detected state.

Fujita further teaches of a detection step of detecting a state of at least one of a local station and a distant station; and a modification step of modifying the control ratio according to the detected state (column 7, lines 28-30 and column 13, lines 19- 47; where the detected states relate to position).

It would have been obvious to a one of ordinary skill in the art at the time the invention was made to combine Malkemes in view of Igarashi and further in view of Nguyen power control method and apparatus with Fujita's detecting a state and ratio control modification in order to provide a transmitter for mobile communication that can provide a high efficiency for a wide output dynamic range, as taught by Fujita.

Regarding claims 5, 11, 17 and 23, Malkemes in view of Igarashi and further in view of Nguyen teaches all the limitations of claims 3, 9, 15, and 21, respectively. Fujita further teaches where the control ratio according to the state of at least one of the local station and the distant station is adaptively modified in the modification step (columns 7, lines 28-30; changes are made as conditions change).

Regarding claims 6, 12, 18 and 24, Malkemes in view of Igarashi and further in view of Nguyen teaches all the limitations of claims 1, 7, 13 and 19, respectively. Fujita further teaches where a control sensitivity of each of the plurality of variable power amplifiers differs from each other (figure 1, items 2, 3 and 4; where it is inherent of variable power amplifiers to differ regarding control sensitivity due to physical conditions such as position, interference, etc. See US Patent No.: 6,411,825; column 9, lines 34-39).

Regarding claims 8 and 20, Malkemes in view of Igarashi and further in view of Nguyen teaches all the limitations of claims 7 and 19, respectively. Malkemes teaches where a control ratio of the variable power amplifiers is modified and at least one of series and parallel control in a control range is made in the controlling a plurality of variable power amplifiers (figure 1, items 2, 3, 4, 6, 8; where the examiner has selected an arrangement in series from the choices given by the applicant).

7. Claims 4, 10, 16 and 22, are rejected under 35 U.S.C. 103(a) as being unpatentable over Malkemes in view of Igarashi and Fujita, further in view of Nguyen and further in view of Davidovici (Davidovici et al.; US Patent No.: 5,963,583).

Regarding claims 4, 10, 16 and 22, Malkemes in view of Igarashi and Fujita and further in view of Nguyen teaches all the limitations of claims 3, 9, 15 and 21, respectively.

Malkemes in view of Igarashi, Fujita and further in view of Nguyen does not teach where a plurality of the states of at least one of the local station and the destination station are detected in the detection step, where the control ratio is modified by using

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fuzzy control rules and fuzzy inference that are based on the plurality of states in the modification step.

In related art, concerning fuzzy-logic adaptive power control, Davidovici teaches of a plurality of the states of at least one of the local station and the destination station are detected in the detection step, where the control ratio is modified by using fuzzy control rules and fuzzy inference that are based on the plurality of states in the modification step (columns 3 and 4, lines 18-20, 34-39 and 53-60; where the interference is indicated by the S/N ratio and the states are based on position).

It would have been obvious to a one of ordinary skill in the art at the time the invention was made to combine Malkemes, Igarashi, Fujita and Nguyen variable power control method with Davidovici's Fuzzy-logic controller as an alternative method to manage the constantly changing detection states and to indicate the amount by which to increase or decrease transmitted power, as taught by Davidovici.

Conclusion

8. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

US Patent No.: 6,417,730 B1, refers to a method and system for automatic gain control.

US Patent No.: 5,530,701 A, refers to a network link controller.


9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Angelica Perez whose telephone number is 571-272-7885. The examiner can normally be reached on 7:00 a.m. - 3:30 p.m., Monday - Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nay Maung can be reached on (571) 272-7882. The fax phone numbers for the organization where this application or proceeding is assigned are 571-273-8300 for regular communications and for After Final communications.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either the PAIR or Public PAIR. Status information for unpublished applications is available through the Private PAIR only. For more information about the pair system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). Information regarding Patent Application Information Retrieval (PAIR) system can be found at 866-217-9197 (toll-free).

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Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the TC 2600's customer service number is 703-306-0377.


Angelica Perez
(Examiner)

EDAN ORGAD
PATENT EXAMINER/TELECOMM.

Lo. 3/29/06
Art Unit 2684

March 22, 2006